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(PTO ASSISTANCE)

Application : <u>10/632669</u>	Examiner : <u>Joyce</u>	GAU : <u>3749</u>
From: <u>PAP</u>	Location: <u>IDC</u> FMF FDC	Date: <u>8/31/05</u>
Tracking #: <u>06108431</u>		Week Date: <u>5/23/05</u>

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<input checked="" type="checkbox"/> SPEC	<u>8/1/2003</u>	

[RUSH] MESSAGE: Page 9 of the Specification has missing data - left side cut-off due to scanning

Serial number on page 8, line 29 is missing.
" " pg 11, line 21
" " pg 12, line 19
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Thank you

[XRUSH] RESPONSE: _____	INITIALS: <u>[Signature]</u>
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FROM: John G. Shudy, Jr.

OUR REF: H0005324(1161.1172101)

TELEPHONE: 612.677.9050

ATTN: Examiner Harold Joyce

Total pages, including cover letter: 6**PTO FAX NUMBER 703.746.6830**

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Title of Document Transmitted: Copy of Response to Notice to File Corrected Application Papers Notice of Allowance Mailed dated September 23, 2005, and Response to the Notice

Applicant: Greg T. Mrozek
Serial No.: 10/632,669
Filed: August 1, 2003
Group Art Unit: 3749
Confirmation No. 2691

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By: John G. Shudy, Jr.
Name: John G. Shudy, Jr.
Reg. No.: 31,214

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on the date shown below.

Name: Lynn Thompson

Lynn Thompson
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October 20, 2005
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10632669

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NOTICE TO FILE CORRECTED APPLICATION PAPERS***Notice of Allowance Mailed***

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given 30 days from the mail date of this Notice within which to correct the informalities indicated below. A failure to reply will result in the application being ABANDONED. This period for reply is NOT extendable under 37 CFR 1.136 (a) or (b).

- Page 8, line 29 serial number missing.
- Page 11, line 21 serial number missing.
- Page 12, line 19 serial number missing.
- Page 9 of the specification has data cut off on the left side.

APPLICANT MUST SUPPLY MISSING INFORMATION WITHIN 30 DAYS OF THE MAIL DATE OF THIS NOTICE.

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A handwritten signature in black ink, appearing to read "Ron Burch", is written over a horizontal line.

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TOTAL P.03

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Greg T. Mrozek et al. Examiner: Harold Joyce
Serial No.: 10/632,669 Group Art Unit: 3749
Filed: August 1, 2003 Docket No.: H0005324 (1161.1172101)
Confirmation No.: 2691

Title: DAMPER INCLUDING A STEPPER MOTOR

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS
Notice of Allowance Mailed

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I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office on the date shown below.

Lynn Thompson October 20, 2005
Lynn Thompson Date

This response is being filed in response to the Notice to File Corrected Application Papers mailed September 23, 2005, setting a one-month shortened statutory period for response ending October 23, 2005.

Amendments to the Specification begin on page 2 of this paper.

Appl. No. 10/632,669
Response Dated October 20, 2005
Reply to Notice mailed September 23, 2005

Amendments to the Specification

Please replace the paragraph beginning on page 8, line 21 with the following amended paragraph:

Referring to Fig. 10, two drive motors 332 are positioned within the housing 334. The motors 332 are controlled by a control device including a microcontroller 344 mounted on a printed circuit board 346. Wires 348 electrically connect the control device to the motors 332. The control device is also equipped with input/output ports 350 mounted on the circuit board 346. The cover 342 can include openings 354 (see Figs. 5 and 6) for providing ready access to the input/output ports 350 even when the cover is secured to the top and bottom walls 338, 340 of the housing 334. As described in U.S. application Serial No. [[10/____,____]] 10,632,672, having attorney Docket No. H0005322, entitled "Bi-Directional Connections for Daisy-Chain Dampers" and filed on a date concurrent herewith, the ports 350 can be used to couple the control device to a main controller, and/or to daisy chain multiple damper units together. The above-identified application is hereby incorporated by reference in its entirety.

Please replace the paragraph beginning on page 11, line 1 with the following amended paragraph:

In a preferred embodiment, the vanes 330 are further configured as described in U.S. application Serial No. [[10/____,____]] 10,632,513, having attorney Docket No. H0005220, entitled "Damper Vane" and filed on a date concurrent herewith. The above-identified application is hereby incorporated by reference in its entirety.

Please replace the paragraph beginning on page 12, line 3 with the following amended paragraph:

Referring now to Figs. 15, 16A and 18, the drive shafts 360 of the drive motors 332 also include second ends 360b that project outwardly from the casings 359 into the housing 334. A rotational position indicator 370 (i.e., a flag) is mounted to the second end 360b. The indicators 370 project perpendicularly outwardly from the shafts 360 and rotate in concert with

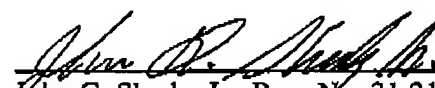
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Response Dated October 20, 2005
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the shafts 360. As best shown in Fig. 14, portions of each of the motors 332 are positioned beneath the circuit board 346 (i.e., portions of the circuit board 346 cover or overlap the motors 332). With the circuit board 346 so positioned, the rotational position indicators 470 pass beneath the circuit board 346 with each revolution of their corresponding shafts 360. Sensing devices 380 are preferably positioned on the side of the circuit board 346 that faces the motors 332. The sensing devices 380 are adapted to detect each time the rotational position indicators 370 pass by the sensors. In one embodiment, the sensing devices 380 include Hall Effect sensors, and the rotational position indicators 370 include magnets capable of being sensed by the Hall Effect sensors. In other embodiments, the sensor can include an optical sensor, a proximity sensor, or any number of different types of sensors. As described in U.S. application Serial No. [[10/____,____,]] 10/633,333 having attorney Docket No. H0005339, entitled "Self-Adjusting System for a Damper" and filed on a date concurrent herewith, the sensing devices 380 and indicators 370 provide data regarding the rotational positions of the vanes which is used by the control device to reset or calibrate the step counts of the motors. The above-identified application is hereby incorporated by reference in its entirety.

Page 9 of the specification is attached as requested in the Notice to File Corrected Application Papers.

Respectfully Submitted,

Date: 10/20/05


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Still referring to Fig. 10, the drive motors 332 are preferably mounted to the upright wall 336. For example, the motors 334 can include casings 359 having mounting flanges 352 for securing the motors 332 directly to the upright wall 336 by conventional fasteners such as rivets, clips, screws, bolts or other fastening techniques. The printed circuit board 346 and wires 348 are preferably mounted within the housing 334. The top and bottom walls 338, 340 of the housing 334 can include sets of inwardly bent tabs 353, 355 (see Fig. 11) for mounting and securing the circuit board 346 within the housing 334. Edges of the circuit board 346 are adapted to be captured between the sets of tabs 354, 355.

While the drive motors 332 can be any type of drive mechanism, as noted above preferred drive mechanisms for rotating the vanes 330 include stepper motors. The drive motors 332 are shown including drive shafts 360 driven by drive mechanisms housed within the casings 359 of the motor 332.

In preferred embodiments, the stepper motors are used to modulate the amount of time that the damper vanes are open for each duty cycle. It is therefore preferably to configure the motor to open and close the vanes in a short amount of time. In one example, each vane can be opened or closed in less than 10 seconds, more preferably less than 5 seconds, and even more preferably less than 2 seconds. In one embodiment, the motors 332 are configured to open or close each vane in about 1 second.

Referring to Figs. 12 and 12A, a cross-sectional view through one of the motors 332 is provided. As is apparent from Fig. 12, the motor 332 is mounted directly to the upright wall 336. As indicated previously, the upright wall 336 corresponds to the minor side wall 321 having an inner surface that defines one of the sides of the airflow opening 308. The drive shaft 360 of the motor 332 includes a first end 360A that extends through the upright wall 336 and projects into the airflow opening 308. For example, the first end 360a is shown projecting through an opening 362 in the upright wall 336 so as to extend into the airflow opening 308. The first end 360a of the shaft 360 is preferably directly coupled to one of the damper vanes 330.

Referring to Figs. 19-21, one of the damper vanes 330 is shown in isolation from the remainder of the damper unit. The depicted damper vane 330 has a generally rectangular shape having oppositely positioned major edges 410, 411